

ABSTRACT OF THE DISCLOSURE

A process for leaching low sulphur content ores to release metal values employs two operational steps. In the first step fine, rod-milled elemental sulphur is preconditioned with sulphur oxidizing bacteria which may include
5 *Thiobacillus*, in an agitated reactor with water. Sulphur produced by this preconditioning process is added to the ore heap during a typical agglomeration process used to adhere small ore particles to the large particles, which increases the permeability of the ore heap. The sulphuric acid produced during the sulphur preconditioning process can be added to the heap during agglomeration
10 as well as by adding some of the acid to the leach solution reservoir. This process results in a homogeneous distribution of the sulphur in the heap so that acid will be produced at the reactive mineral sites and will be consumed immediately, thus maintaining a low acid concentration and a low driving force for the acid/gangue reactions resulting in overall lower acid consumption.